

REMARKS

The Examiner has rejected claims 1-19 under 35 U.S.C. § 102(f) and questioned whether the inventors identified in the present invention, namely Neil Broderick, Valerio Pruneri, David Richardson and Tanya Monro, in totality, form the correct inventive entity of the subject matter sought to be patentable. Particularly, the Examiner refers to search report citations U, V, W and X, and notes that some of the persons identified in those publications do not correspond to the named inventive entity.

The Applicants confirm that the inventors named in the present application are indeed the true inventors of the claimed subject matter. While documents U, V, W and X identify persons other than the named inventors, these further persons did not invent the claimed subject matter. Rather, those persons were involved in the technical work presented in documents U, V, W and X, subsequent to and separate from the invention actually being made. In this regard, it is noted that some of the citations relate to the practical realization of a poled holey fiber. The named inventor, Neil Broderick, for example, contributed to the theoretical aspects of the invention and this accounts for his absence in the authorship lists of the Faccio et al publications (citations U and V)

Applicants request reconsideration of the rejection of claims under 35 U.S.C. §103(a). The present invention relates to optical devices which are based on parametric processes in non-linear waveguides. Claim 1 recites a device based on a parametric process, which device includes an optical fiber having a core and cladding. The fiber is poled with a non-linearity profile to satisfy a quasi phase matching (QPM) condition including ω_1 and ω_2 , which are two frequencies involved in the parametric process. The cladding of the fiber includes a hole structure for confining at least one

optical mode (for example, modes having frequency ω_1 , ω_2 or ω_1 and ω_2) in the core. Independent Claim 15 recites a method of fabricating a device such as that claimed in Claim 1 and accordingly recites analogous features.

Optical fibers, which incorporate a cladding with a hole structure and which are also poled for QPM were not known prior to the present invention. The Examiner, however, has suggested that independent Claims 1 and 15 are obvious in view of the CLEO '99 article (Richardson), which was filed as part of the Applicants' Information Disclosure Statement. Contrary to the Examiner's suggestion, Richardson does not disclose "the fabrication of quasi phase matched poled nonlinear structures in holey optical fibers." Accordingly, the notional difference between Richardson and the present invention raised by the Examiner is not correct. In fact, Richardson provides a very general and undetailed review of "recent activities and achievements" in "three key areas" (1st paragraph). These areas are (in order of appearance): Fiber Bragg Grating (FBGs), Holey Fibers, and Quasi Phase Matched poled fibers. Thus Richardson provides, at best, only a very brief review of the effects achievable in holey fibers and the applications thereof. Richardson also discusses the fabrication of QPM poled fibers. It is important to note, however, that these areas are considered entirely as separate fabrication techniques by Richardson and there is absolutely no suggestion or motivation of the possibility to combine them to provide a poled holey fiber.

The other two documents cited in the Office Action (the CLEO '00 article and Choi et al) also neither teach nor suggest a holey fiber which is poled for QPM. Indeed, neither of these documents were cited by the Examiner against the independent claims.


Accordingly, it is believed that the claims are patentable over the cited references, taken singly or in combination, and Applicants request that claims 1-19 be allowed. Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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